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The CLOVER LEAF WEEVIL

and its control



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Contents

	Page
Nature of injury.....	1
Distribution.....	1
Description and life history.....	1
Food plants.....	4
Control.....	4
Precautions.....	6

THE CLOVER LEAF WEEVIL AND ITS CONTROL

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Nature of Injury

The clover leaf weevil ¹ sometimes causes serious injury to clover and alfalfa. In early spring, plants attacked by this insect have a ragged appearance, with small holes and irregular patches eaten in the leaves by the larvae. Rarely is a crop entirely lost, but considerable injury may result, especially in backward seasons, before the larvae become full grown or are killed by an almost universally prevalent fungus disease to which they are susceptible.

Distribution

The clover leaf weevil occurs in Asia and is well known in Europe. It was accidentally introduced into the United States, and is now well established in this country, wherever clover and alfalfa are grown.

Description and Life History

The adult weevil (fig. 1) is about one-fourth inch long and one-eighth inch wide. It is covered with small brown, yellow, and gray

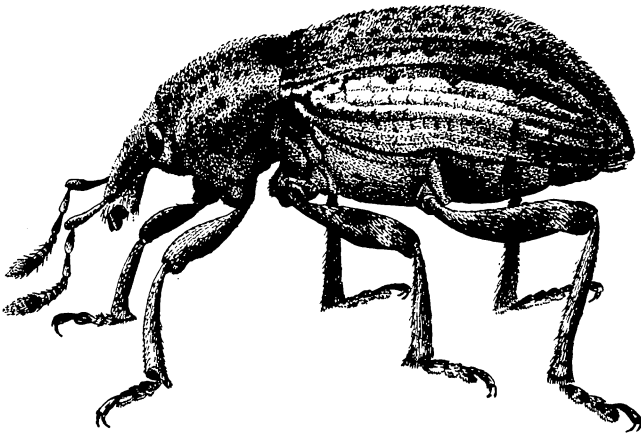


FIGURE 1.—Adult clover leaf weevil, side view. Much enlarged.

scales, which give it a mottled appearance. It has a short but distinct snout.

The eggs are oval, about one twenty-fifth of an inch long and about half as wide. They are yellowish when first laid but darken with age and finally turn black. The beetles deposit their eggs on the leaves or stems of the green host plants, in cavities gnawed in fresh stems (fig. 2), or in hollows of old stems. The eggs are usually laid during the

¹ *Hypera punctata*.

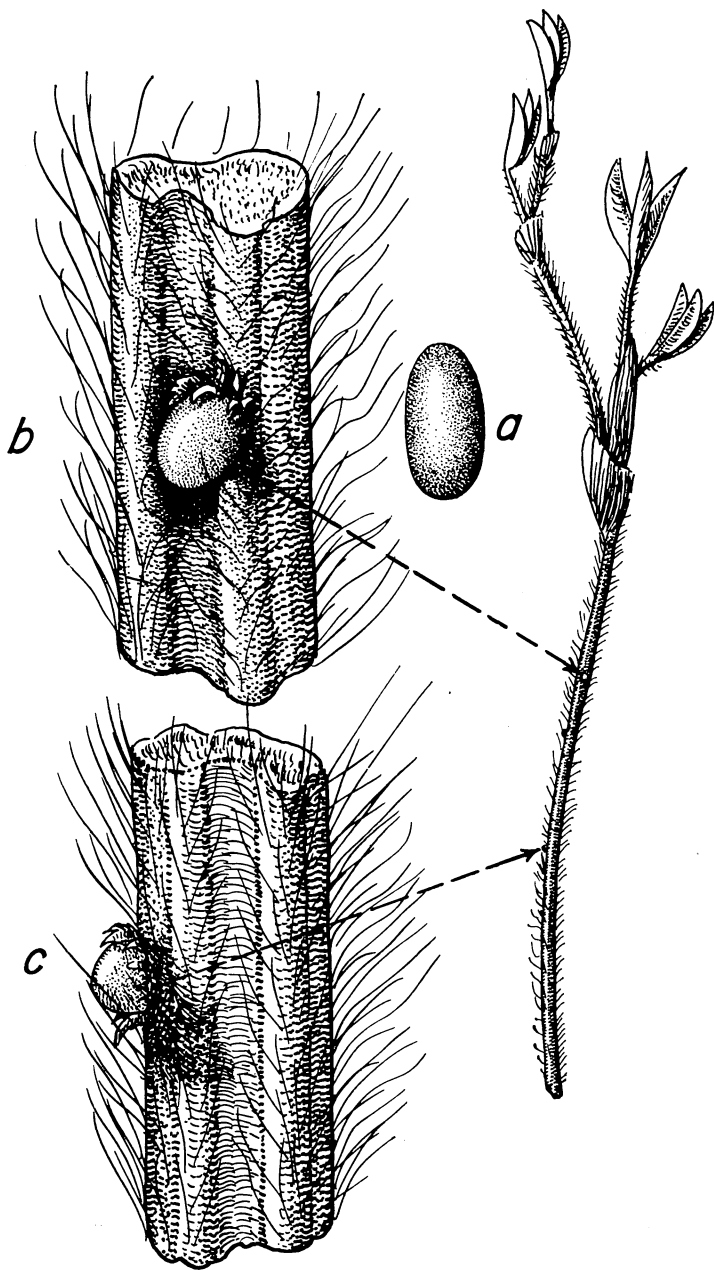


FIGURE 2.—Egg of the clover leaf weevil: *a*, Side view; *b*, egg inserted into stem of clover plant; *c*, side view of *b*. Much enlarged.

fall of the year, but some of the weevils live through the winter and may deposit eggs during mild periods in the winter or spring.

Most of the eggs hatch in the fall, although some of them overwinter. The small, newly hatched larvae are green. They begin to

feed at once on the leaves, and continue their feeding on mild days throughout the winter and early spring. They become full grown the latter part of April or in May. The full-grown larva (fig. 3) is about one-half inch long and has a brown head. The body is usually green but sometimes yellowish, with a white or pinkish line down the center of the back.

When full grown the larva spins an oval cocoon (fig. 4) just beneath

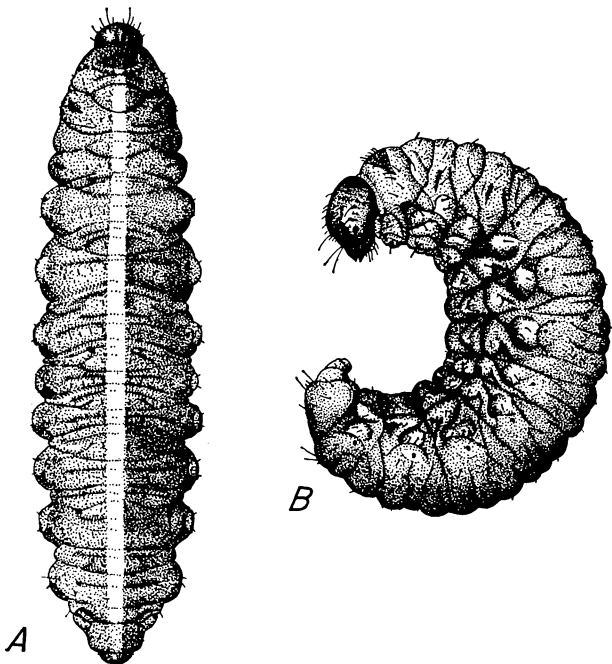


FIGURE 3.—Full-grown larva of the clover leaf weevil: A, Top view; B, side view
Much enlarged.

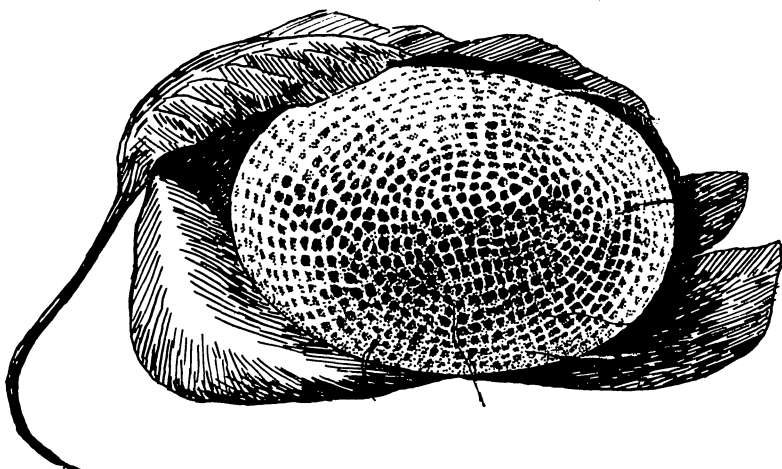


FIGURE 4.—Cocoon of the clover leaf weevil surrounded by leaves of clover plant.
Much enlarged.

the surface of the soil or in leaves or other debris near the base of the plants. The cocoon is straw color, about three-eighths inch long and one-fourth inch wide. Within this cocoon the larva changes to a pupa. After about 11 days, the adult beetle emerges from the cocoon, feeds for a short period, and then becomes more or less inactive for much of the summer, hiding away in field litter. In the fall the beetles become active again, and the females lay their eggs.

There is usually only one generation a year. Under exceptional weather conditions, however, a second generation may develop and produce weevils before cold weather arrives. These weevils live over winter and lay their eggs the following spring. This generation may injure young clover and alfalfa in the fall.

Food Plants

The clover leaf weevil prefers to feed on red clover, alfalfa, and white clover, but it will also eat other varieties of clover, including alsike and Ladino. It also feeds on some varieties of beans, and occasionally on sweetclover, as well as on timothy, wheat, burdock, soybeans, corn, and various flowers.

Control

A disease caused by a fungus² usually keeps this insect from becoming a serious pest on clover and alfalfa. The fungus is well distributed over the clover- and alfalfa-growing areas of the United States. Widespread epidemics of the disease occur during periods of high humidity. These epidemics may develop in any month from October to May, or practically throughout the feeding period of the larvae.

Diseased larvae crawl to the upper part of a plant and curl across the edges of the leaves or around the stems (fig. 5). In the morning, diseased larvae are common in such locations, whereas healthy larvae are in the litter at the base of the plants. By midday or early afternoon the dead larvae have become attached to the leaves and stems by rootlike strands of the fungus that issue from the under side of the larvae (fig. 6). Late in the afternoon and at night the larvae become covered with myriads of filaments at the ends of which are borne spores that are responsible for producing epidemics of this disease. These spores are scattered in a single night. The position of the diseased larvae on the upper part of the plant is favorable for spreading the disease organisms.

Even when temperatures are favorable and infected larvae are present, the spread of the disease is slow during clear, dry weather. Under such conditions, the fungus develops resting spores in the body of the larvae. These spores apparently do not aid in the immediate spread of the fungus. Also, little disease has been found among larvae infesting clover growing on land that for several years has supported a practically pure stand of grass.

Since the fungus disease is the most effective agent in keeping the clover leaf weevil under control, follow practices that will foster development of the disease but which are at the same time favorable for

² *Empusa sphaerosperma*.



FIGURE 5.—Larva of the clover leaf weevil killed by the fungus disease.

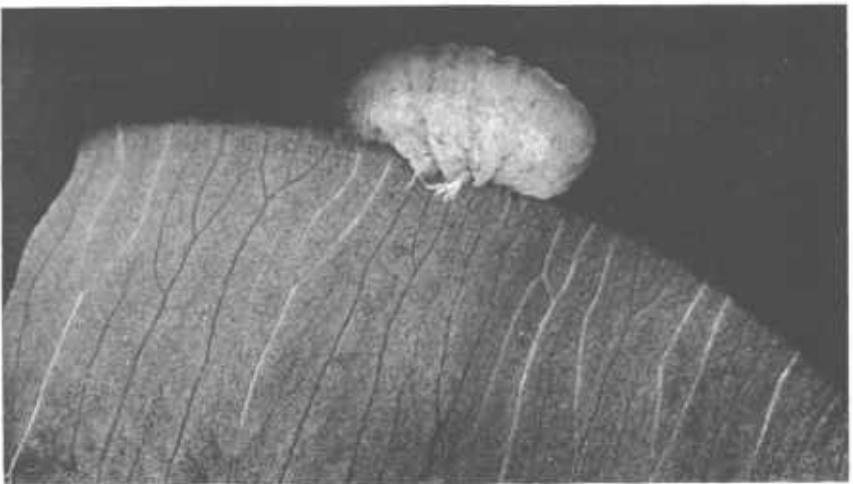


FIGURE 6.—Dead larva of clover leaf weevil attached to clover leaf by root-like strands of fungus that have issued from the under side of the larva.

the production of clover or alfalfa. To promote development of the disease:

- (1) Maintain favorable fertility conditions to insure vigorous crop growth.
- (2) Keep the humus content of the soil at a level favorable for the conservation of water.
- (3) Use clover or alfalfa regularly with grass in crop rotation.

Because of the effectiveness of the disease and the usual vigorous condition of the host plants in the spring of the year, it seldom is necessary or practical to apply direct control measures against the weevil. However, in the fall, when the disease is less effective, there have been instances in the Southern States where young alfalfa plants have been practically stripped of leaves by the larvae of this pest.

If weevil larvae are numerous and threaten destruction of the clover or alfalfa crop, spray with methoxychlor at the rate of 1 pound per acre. Use an emulsifiable concentrate. Dilute it with water in an amount to suit the spray equipment and apply at least 10 gallons of spray per acre.

PRECAUTIONS

Methoxychlor is poisonous. Handle it with care. Follow directions and heed precautions on the label.

Store methoxychlor in a dry place, where children and animals cannot reach it.

Do not cut or pasture crops treated with methoxychlor for 7 days after application.